



# CALTRANS REGIONAL OPERATIONS FORUMS

Planning and Programming for  
Operations



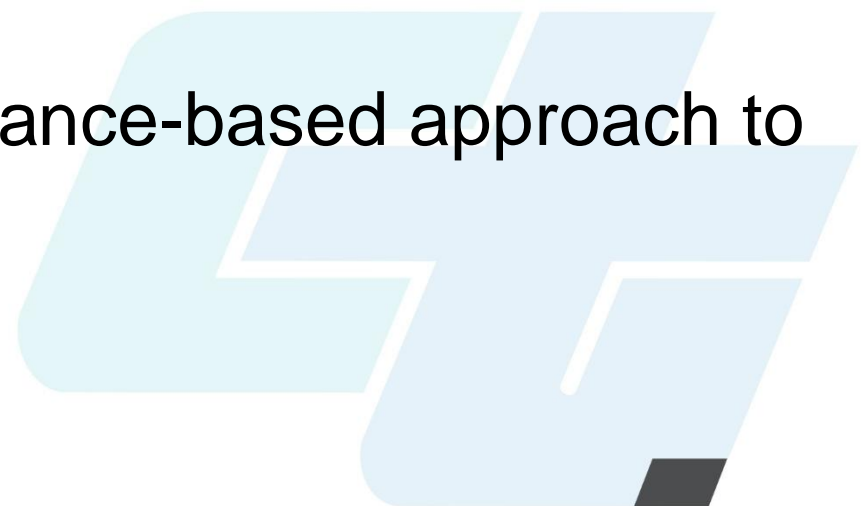


Ensuring effective use of  
TSMO strategies in a region  
requires a shift...



Away from project-focused responses

Toward a strategic, performance-based approach to  
planning for operations





## **We need to address how the system operates and how various TSMO strategies address system performance needs**

- ▶ Prioritize investments to achieve operations objectives and improve transportation system performance
- ▶ Invest in strategies that provide measurable results
- ▶ Demonstrate accountability through performance measures







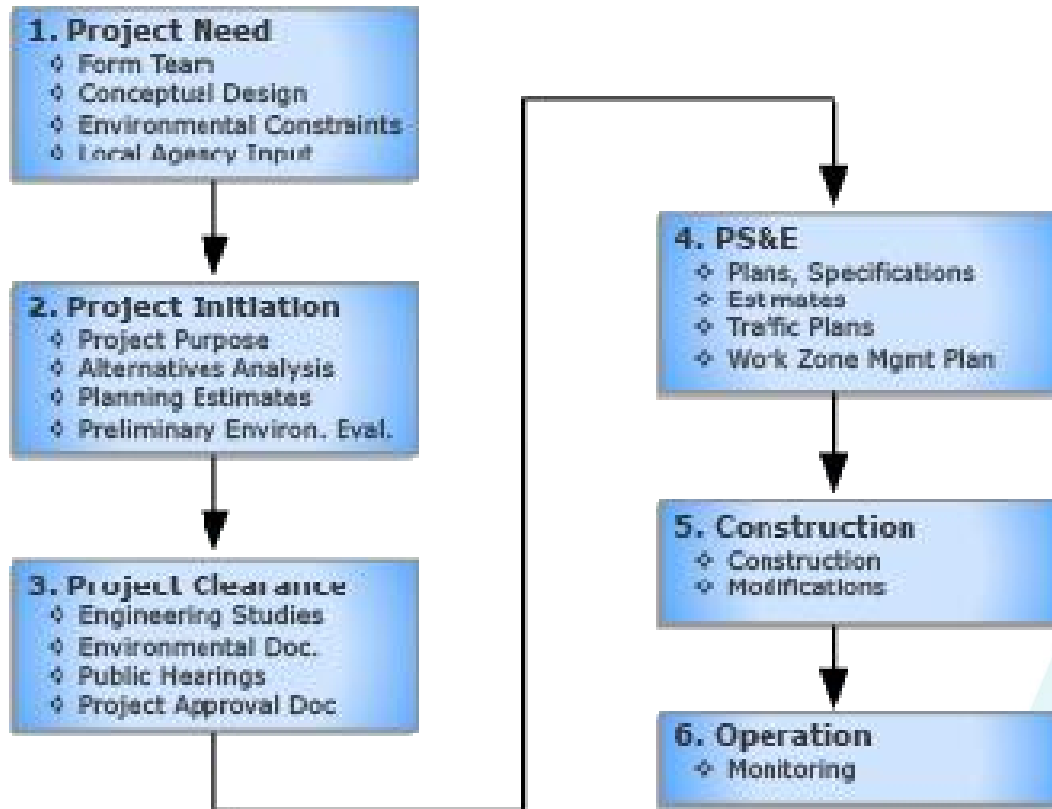
# What is Planning for Operations?

- ▶ A joint effort between planners & operators to improve regional transportation system performance
- ▶ Focuses on integrating management & operations strategies in the transportation planning process
- ▶ Driven by objectives & performance measures
- ▶ Enhances regional decision-making process so that operations investments are on par with investments in construction & system preservation.





# Legacy Program Development Process



- ▶ Typical steps from definition of need to Construction
- ▶ Focus is on design and construction
- ▶ Civil engineering-based
- ▶ Major costs and impacts impact process
- ▶ Project is “finished” after construction
- ▶ Maintenance in following years



## How We Plan Today

### ► California 2040 Transportation Plan

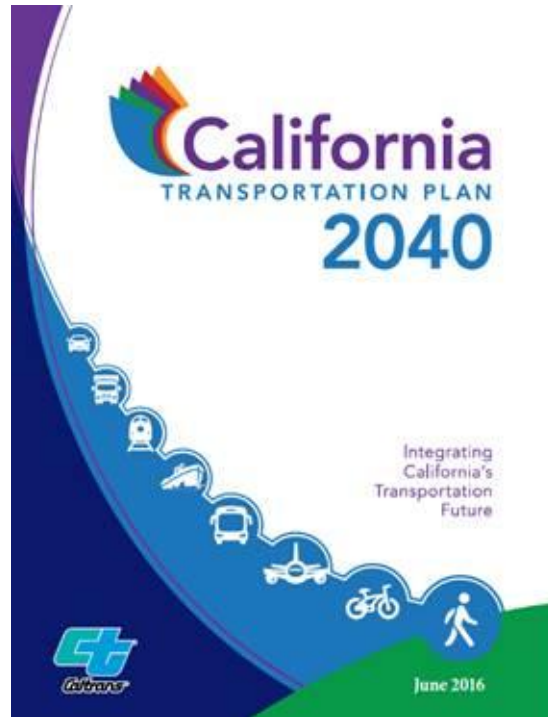


Figure 2

### CTP2040 Policy Framework

#### THE VISION SUSTAINABILITY

California's transportation system is safe, sustainable, universally accessible, and globally competitive. It provides reliable and efficient mobility for people, goods, and services, while meeting the State's greenhouse gas emission reduction goals and preserving the unique character of California's communities.



#### THE GOALS

1	2	3	4	5	6
Improve Multimodal Mobility and Accessibility for All People	Preserve the Multimodal Transportation System	Support a Vibrant Economy	Improve Public Safety and Security	Foster Livable and Healthy Communities and Promote Social Equity	Practice Environmental Stewardship

#### THE POLICIES

<b>POLICY 1</b> Manage and Operate an Efficient Integrated System	<b>POLICY 1</b> Apply Sustainable Preventative Maintenance and Rehabilitation Strategies	<b>POLICY 1</b> Support Transportation Choices to Enhance Economic Activity	<b>POLICY 1</b> Reduce Fatalities, Serious Injuries, and Collisions	<b>POLICY 1</b> Expand Engagement in Multimodal Transportation Planning and Decision Making	<b>POLICY 1</b> Integrate Environmental Considerations in All Stages of Planning and Implementation
<b>POLICY 2</b> Invest Strategically to Optimize System Performance	<b>POLICY 2</b> Evaluate Multimodal Life Cycle Costs in Project Decision Making	<b>POLICY 2</b> Enhance Freight Mobility, Reliability, and Global Competitiveness	<b>POLICY 2</b> Provide for System Security, Emergency Preparedness, Response, and Recovery	<b>POLICY 2</b> Integrate Multimodal Transportation and Land Use Development	<b>POLICY 2</b> Conserve and Enhance Natural, Agricultural, and Cultural Resources
<b>POLICY 3</b> Provide Viable and Equitable Multimodal Choices Including Active Transportation	<b>POLICY 3</b> Adapt the Transportation System to Reduce Impacts from Climate Change	<b>POLICY 3</b> Seek Sustainable and Flexible Funding to Maintain and Improve the System		<b>POLICY 3</b> Integrate Health and Social Equity in Transportation Planning and Decision Making	<b>POLICY 3</b> Reduce Greenhouse Gas Emissions and Other Air Pollutants
					<b>POLICY 4</b> Transform to a Clean and Energy Efficient Transportation System



# Planning at the District Level

- ▶ District System Management Plan
- ▶ Corridor System Management Plan
- ▶ Transportation Concept Reports
- ▶ Interregional Transportation System Strategic Plan
  
- ▶ TSMO Related Planning
  - ↳ Upstate CA Regional ITS Plan
  - ↳ Regional ITS Architectures

***These are all an important, and longer-term view of system needs***





# Conventional Corridor Planning

- ▶ Agencies use to focus on needs of specific area/corridor
- ▶ For multipurpose corridor strategies: mobility, access, development
- ▶ Project Initiation Documents (initial step for funding consideration)
- ▶ Includes freeways, arterial, multimodal
- ▶ Some Statewide Long-Range Plans may be based on corridors
- ▶ Some MPOs/Counties lead corridor studies and/or organize CMP on corridor basis
- ▶ TSMO version called “integrated corridor management” (ICM)





# Integrated Corridor Planning

- ▶ TSMO Focused (may also have capacity components)
  - ↳ Key services (incident management, traveler information)
  - ↳ Links to corridor performance objectives
- ▶ Includes multiple jurisdictions and their networks
- ▶ Targets operations for both RC and NRC combining freeway, arterial (and transit) resources – on a cross-network basis
- ▶ Incorporates Concept of Operations – how operations will be done, roles, responsibilities, information sharing
- ▶ Technology and communications
- ▶ Identifies inter-jurisdictional agreements, priorities, procedures, commitment of resources





# Upstate CA Regional ITS Plan

- ▶ Multi-district effort
- ▶ Precursors:
  - ↳ COATS
  - ↳ Regional ITS architectures/deployment plans
- ▶ What are some of the needs this Plan is addressing?
- ▶ How will it influence local planning?





# Discussion

- ▶ How is operations currently addressed as part of planning in District 1?
- ▶ How can D1 program projects to address near-term operations needs?
- ▶ How do local transportation plans help to program TSMO related investments?



# Important Components of TSM&O Program Planning

1. A “business case” – how TSM&O relates to agency mission/goals to get buy in
2. Performance measures to gauge progress and use in real time
3. A road map for sustainable strategy application improvements related to problems
4. Clear concepts-of-operations (architecture) to identify systems needed and roles of partners
5. An organizational structure and staff capable of coordinated operational management
6. Budget for sustainable funding (put forward to “planners”)
7. New forms of collaboration: within DOT, among partners – recognizing differential capacities





# Objectives-Driven, Performance-Based Approach

Transportation Plan includes:

- ▶ Goals & measurable objectives that advance operational performance outcomes of the transportation system
- ▶ Performance measures used to track progress toward objectives
- ▶ TSMO strategies to meet the measurable objectives
- ▶ **TSMO strategies are programmed & implemented in collaboration with local agencies**





# SMART Operations Objectives

- ▶ Operations objectives to be included in the plan are developed through collaboration with a broad range of regional participants and reflect regional values.

**S**pecific. Sufficient to guide approaches

**M**easurable. Quantitative/qualitative measurement

**A**greed. Consensus among partners

**R**ealistic. Can be accomplished with available resources

**T**ime-Bound. Identified time-frame for accomplishment

# Sample Operations Objectives

- ▶ Improve average travel time during peak periods by X percent by year Y.
- ▶ Reduce the average buffer time needed to arrive on-time for 95 percent of trips on [specified routes] by X minutes over Y years.
- ▶ Improve average on-time performance for specified transit routes/facilities by X percent within Y years.
- ▶ Reduce time between incident/emergency verification and posting a traveler alert to traveler information outlets (variable message signs, agency website, 511 system) by X minutes in Y years.
- ▶ Increase customer satisfaction rating of the timeliness, accuracy, and usefulness of traveler information in the region by W, X, and Z percent, respectively, over Y years.



## Performance Measures

- ▶ Indicators of how well transportation system is performing
- ▶ Provide adequate information on progress toward achieving objectives

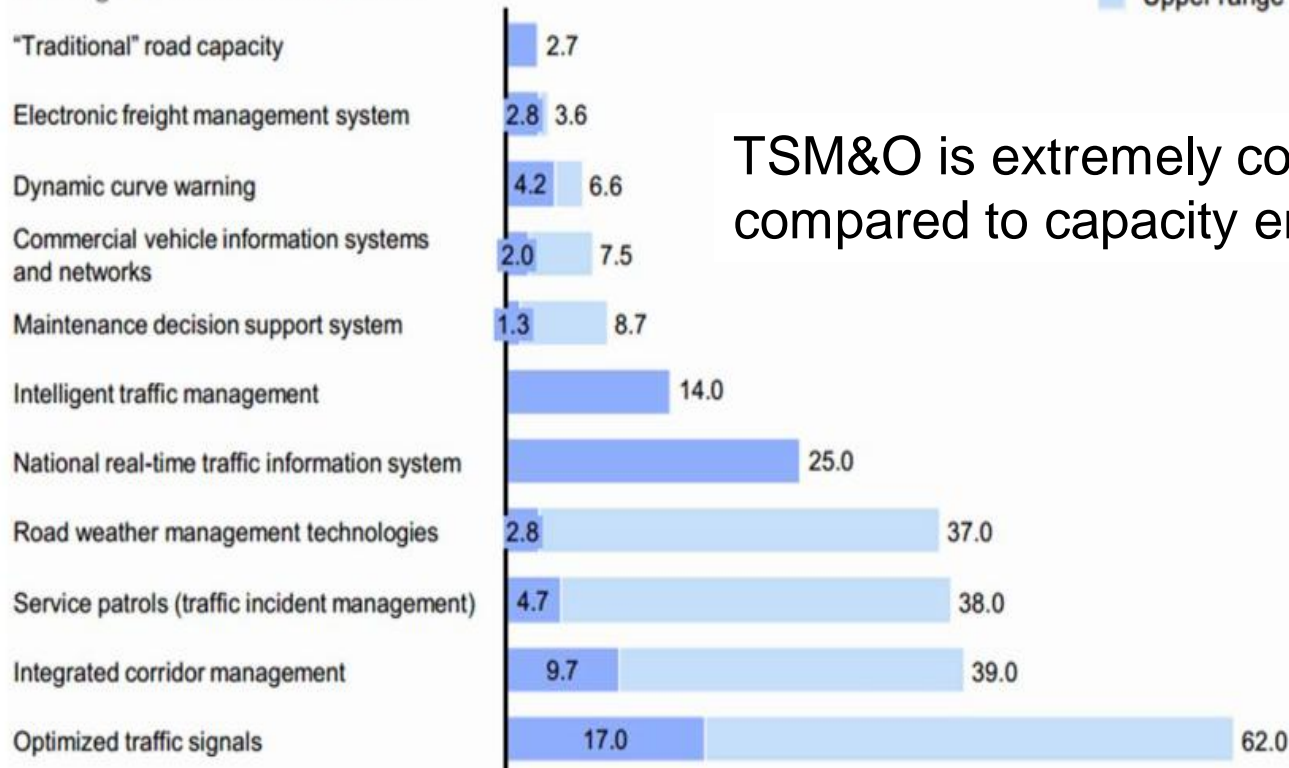


- Developed collaboratively among planners and operators in the region



# Supporting the Business Case

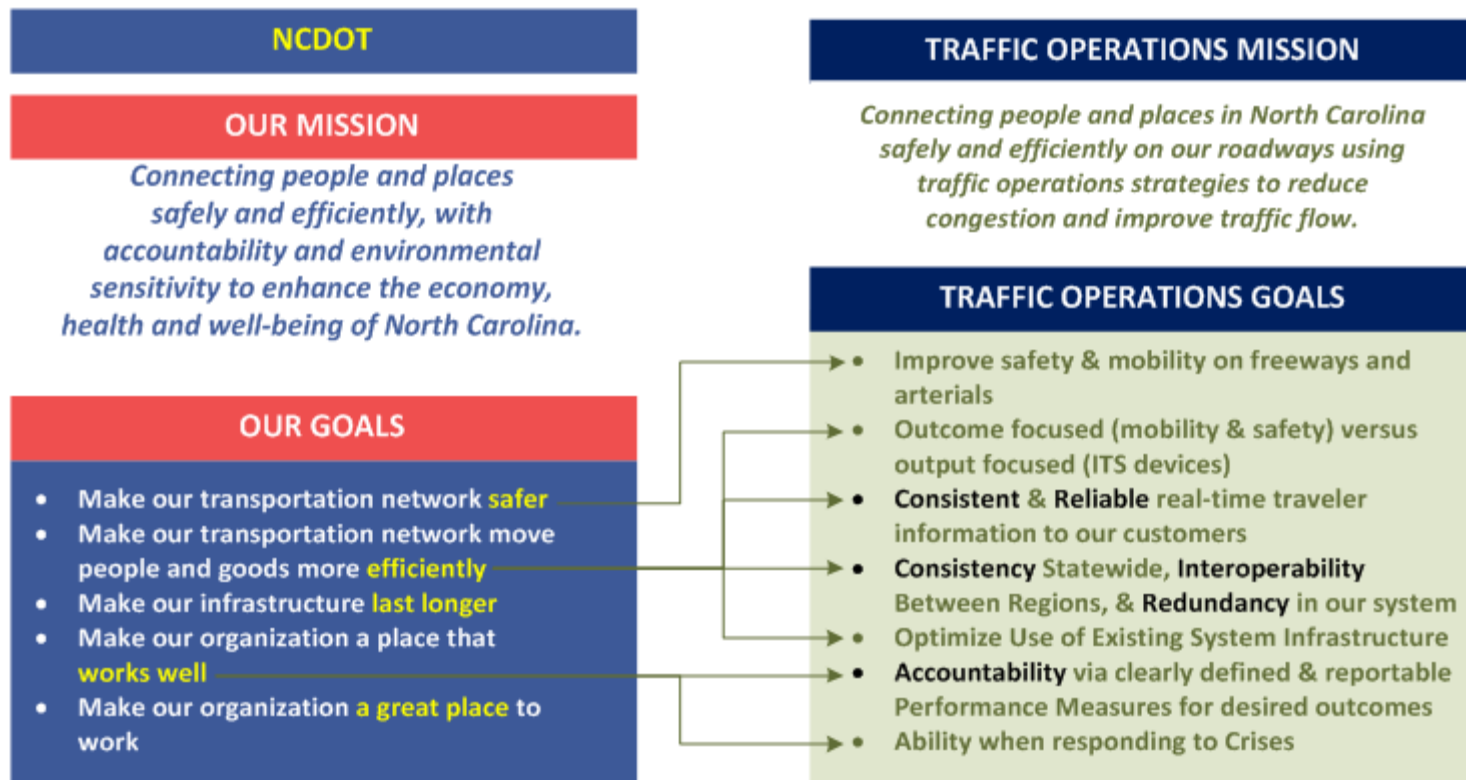
Comparison of returns for different road investments  
Average benefit-to-cost ratios



TSM&O is extremely cost-effective, compared to capacity enhancements



# EXAMPLE: Making the Business Case: Aligning TSM&O with Agency Goals





# What Are Some Other Ways to Make a Business Case?

- ▶ What would help make the case here in this region?
- ▶ What are the important issues that could be highlighted to garner support for TSMO?

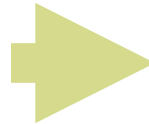




# Some Important Shifts for Planning

## *Traditional Planning Process*

- ▶ Long-term planning focus
- ▶ Capital investment focused
- ▶ Project orientation
- ▶ Capacity-deficiency based
- ▶ Concern over environment
- ▶ Focus on limited links
- ▶ Recurring congestion only



## *Adjustments Needed for TSMO*

- ▶ Add Short –term payoff perspective
- ▶ Include non-recurring congestion
- ▶ Substitutions of TSMO for capacity
- ▶ Network wide applications
- ▶ Optimize operations/capacity investments
- ▶ Include Maintenance, staffing
- ▶ Uses Performance measures

TSMO Managers Help Shift Planning Mindset





# Bottom Line

- ▶ If TSMO is part of agency mission – and TSMO strategies are being deployed/operated, they need their own program plan (just like other agency programs)
- ▶ This is new – to both TSMO managers – and to planners
- ▶ There is new ground to be broken – in defining what should be in a TSMO program plan, who does it, how it is done, etc.
- ▶ You can be part of the solution





# Useful Publications: USDOT ([www.plan4operations.dot.gov](http://www.plan4operations.dot.gov))

- ▶ A Primer – Statewide Opportunities for Linking Planning and Operations
- ▶ Advancing Metropolitan Planning for Operations: An Objectives-Driven, Performance-Based Approach – A Guidebook
- ▶ Advancing Metropolitan Planning for Operations: Set Objectives, Measure Progress, See Results
- ▶ Advancing Metropolitan Planning for Operations: The Building Blocks of a Model Transportation Plan Incorporating Operations – A Desk Reference
- ▶ An Interim Guidebook on the Congestion Management Process in Metropolitan Transportation Planning
- ▶ Applying a Regional ITS Architecture to Support Planning for Operations: A Primer
- ▶ Creating an Effective Program to Advance Transportation Systems Management and Operations: Primer
- ▶ Delaware Valley Regional Planning Commission Philadelphia Metropolitan Region Case Study
- ▶ Developing Decision maker Support for Management and Operations at MetroPlan Orlando





# Useful Publications:

## USDOT ([www.plan4operations.dot.gov](http://www.plan4operations.dot.gov))

- ▶ Getting More by Working Together – Opportunities for Linking Planning and Operations: A Reference Manual
- ▶ Management & Operations in the Metropolitan Transportation Plan: A Guidebook for Creating an Objectives-Driven, Performance-Based Approach
- ▶ Operations Benefit/Cost Analysis Desk Reference
- ▶ Regional Concept for Transportation Operations: A Tool for Strengthening and Guiding Regional Transportation Operations Collaboration and Coordination
- ▶ Regional Concept for Transportation Operations: The Blueprint for Action – A Primer
- ▶ Regional Transportation Operations Collaboration and Coordination: A Primer for Working Together to Improve Transportation Safety, Reliability, and Security
- ▶ The Collaborative Advantage: Realizing the Tangible Benefits of Regional Transportation Operations Collaboration
- ▶ The Regional Concept for Transportation Operations: A Practitioner's Guide
- ▶ Wilmington Area Planning Council New Castle County, Delaware and Cecil County, Maryland Case Study

## Useful Publications: SHRP2 Reliability

([www.trb.org/StrategicHighwayResearchProgram2SHRP2/Pages/Reliability\\_Projects\\_302.aspx](http://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Pages/Reliability_Projects_302.aspx))

- ▶ Integrating Business Processes to Improve Reliability
- ▶ Establishing Monitoring Programs for Mobility and Travel Time Reliability
- ▶ Analytic Procedures for Determining the Impacts of Reliability Mitigation Strategies
- ▶ Incorporating Reliability Performance Measures in Operations and Planning Modeling Tools
- ▶ Incorporating Reliability Performance Measures into the Transportation Planning and Programming Processes
- ▶ Institutional Architectures to Advance Operational Strategies
- ▶ Evaluation of Cost-Effectiveness of Highway Design Features
- ▶ Incorporation of Travel Time Reliability into the Highway Capacity Manual
- ▶ Incorporation of Non-recurrent Congestion Factors into the AASHTO Policy on Geometric Design
- ▶ Feasibility of Using In-Vehicle Video Data to Explore How to Modify Driver Behavior that Causes Non-Recurring Congestion
- ▶ Evaluating Alternative Operations Strategies to Improve Travel Time Reliability
- ▶ Improving Traffic Incident Scene Management
- ▶ Archive for Reliability and Related Data





# Useful Publications: SHRP2 Reliability

([www.trb.org/StrategicHighwayResearchProgram2SHRP2/Pages/Reliability\\_Projects\\_302.aspx](http://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Pages/Reliability_Projects_302.aspx))

- ▶ Design and Implement a System for Archiving and Disseminating Data from SHRP 2 Reliabilities and Related Studies/ Assistance to Contractors to Archive their Data for Reliability Projects
- ▶ Traveler Information and Travel Time Reliability
- ▶ Innovative IDEA Projects
- ▶ Assistance to Contractors to Archive Their Data for Reliability and Related Projects
- ▶ A Framework for Improving Travel Time Reliability
- ▶ e-Learning for Training Traffic Incident Responders and Managers
- ▶ Post-Course Assessment and Reporting Tool for Trainers and TIM Responders Using the SHRP 2 Interdisciplinary Traffic Incident Management Curriculum
- ▶ Validation of Urban Freeway Models
- ▶ e-Tool for Business Processes to Improve Travel Time Reliability
- ▶ Local Methods for Modeling, Economic Evaluation, Justification and Use of the Value of Travel Time Reliability in Transportation Decision Making
- ▶ Regional Operations Forums for Advancing Systems Operations, Management, and Reliability
- ▶ Pilot Testing of SHRP 2 Reliability Data and Analytical Products
- ▶ Reliability Implementation Support

